

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
(Case No. 98,475-B1)

In re Application of)
Paul Mertens et al.)
Serial No.: Not yet assigned) Group Art Unit: 1746
Filed: February 13, 2002) Examiner: Not Assigned
For: METHOD AND APPARATUS FOR LOCALIZED)
LIQUID TREATMENT OF THE SURFACE OF A)
SUBSTRATE)

PRELIMINARY AMENDMENT

Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

IN THE SPECIFICATION

Please amend page 21, line 31 to page 22, line 34 of the specification as follows. A marked up version of the amended portion of the specification, to show all the changes, is attached hereto on pages separate from the amendment in accordance with 37 CFR 1.121(c)(1)(ii):

Figure 6a describes the method and apparatus according to another embodiment of the invention, which is suitable for the technique of impurity collection. It may also be suitable for obtaining larger sized film-free areas, like zero-markers. An amount of liquid 60 is put into contact with the surface of the substrate 1 through a central channel 61. This channel is closed off on the top side. Advantageously, the pressure inside the channel 63 is lower than the ambient pressure acting on the substrate surface. The lower the pressure above the liquid, the higher the amount of liquid which can be contained. A channel 62 which is placed around the channel 61 is used to supply a gaseous tensio-active substance, which reduces the surface tension of the liquid so that said liquid is contained on a localized area of the surface. In case a droplet of said liquid is used, a reduction of the pressure above said droplet is unnecessary. In this case, the central channel 61 may be open on top.

A sealing device such as an O-ring 63 may be added between the substrate and the outer wall of the channel 61. In this case, the stream of gaseous tensio-active substance would make sure that any liquid leaking through the seal is contained on the area to be treated.

In figure 6b, an additional channel 64 is added to the apparatus. This version of the apparatus is preferred when the gaseous tensio-active substance must be prevented from touching the rest of the substrate or from leaking into the environment. The arrows indicate that the gaseous tensio-active substance is drained from the surface of the substrate through this third channel 64. However, it is equally possible for the gas to be supplied through the third channel and drained through the second channel.

Whatever the direction of the stream of gaseous tensio-active substance in the apparatus of Figure 6b, an additional sealing device 65 may advantageously be placed between the substrate and the outer wall of the apparatus, in order to prevent the gaseous substance from leaking into the environment.

IN THE CLAIMS

Please cancel claims 1-21 without prejudice.

REMARKS

Applicants amend a portion of the specification due to inadvertent errors in the numbering of elements. Applicants do not believe that any new matter is added.

Respectfully submitted,

McDonnell Boehnen Hulbert & Berghoff

Dated: February 13, 2002

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APPENDIX UNDER 37 CFR 1.121(c)

Figure 6a describes the method and apparatus according to another embodiment of the invention, which is suitable for the technique of impurity collection. It may also be suitable for obtaining larger sized film-free areas, like zero-markers. An amount of liquid [62] 60 is put into contact with the surface of the substrate [61] 1 through a central channel [63] 61. This channel is closed off on the top side. Advantageously, the pressure inside the channel 63 is lower than the ambient pressure acting on the substrate surface. The lower the pressure above the liquid, the higher the amount of liquid which can be contained. A channel [64] 62 which is placed around the channel [63] 61 is used to supply a gaseous tensio-active substance, which reduces the surface tension of the liquid so that said liquid is contained on a localized area of the surface. In case a droplet of said liquid is used, a reduction of the pressure above said droplet is unnecessary. In this case, the central channel [63] 61 may be open on top.

A sealing device such as an O-ring [65] 63 may be added between the substrate and the outer wall of the channel [63] 61. In this case, the stream of gaseous tensio-active substance would make sure that any liquid leaking through the seal is contained on the area to be treated.

In figure 6b, an additional channel [66] 64 is added to the apparatus. This version of the apparatus is preferred when the gaseous tensio-active substance must be prevented from touching the rest of the substrate or from leaking into the environment. The arrows indicate that the gaseous tensio-active substance is drained from the surface of the substrate through this third channel [66] 64. However, it is equally possible for the gas to be supplied through the third channel and drained through the second channel.

Whatever the direction of the stream of gaseous tensio-active substance in the apparatus of Figure 6b, an additional sealing device [67] 65 may advantageously be placed between the substrate and the outer wall of the apparatus, in order to prevent the gaseous substance from leaking into the environment.